

## Features of reef formation in the evlan time of upper devonian sediments by electron paramagnetic resonance

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### Abstract

© SGEM2017. All Rights Reserved. Investigation of the paramagnetic properties of core samples from the section of the reference well was performed on the basis of a representative sample (97 samples) by electron paramagnetic resonance (EPR) for mineral associations of the Evlan horizon of the Upper Devonian deposits of the Volga-Ural region of the Republic of Tatarstan. Within the Volga-Ural region, reef formation dates back to the late Frasnian and has developed to the maximum extent in the Voronezh, Evlan and Liven times. The deposition of the Voronezh horizon begins with a series of limestone, intensely dolomitized and recrystallized, where oxide iron is present in the secondary calcite was determined from the EPR spectra. The Evlan sequence of deposits, according to the EPR data, begins with an anhydrite of dolomite interlayer, above which limestone rocks with various degrees of dolomites (1601 m - 1597.4 m) were deposited. At the same time, the position of this interlayer characterizes the presence of a reservoir, the tops of which correspond to a mark of 1599.1 m. According to the results of EPR studies of the C 600 carbonized syngenetic radical, it is established that its concentration in the calcareous section of the Voronezh deposit section is more than 1.5 times the concentration in the Evlan deposits. Upwards in the section of the Evlan deposits, regressive shallowing of the basin is observed in the calcareous section and a change in the carbonate to sulfate sedimentation and the release of sediments onto the surface occurs. These processes led to a frequent change of the Eh-pH conditions already at the stage of early diagenesis. The appearance of secondary calcite and dolomitization of limestone allows us to distinguish the stages of alkaline diagenesis.

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### Keywords

Carbonate, Electron paramagnetic resonance, Evlan horizon, Organic matter, Reef, Upper Devonian, Voronezh

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